focus

CHILE

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ALICE TAYLOR, EDITOR

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Chile

Chile is a country of extremes, if ever there was one. It is 2,600 miles long and averages but little more than 100 miles in width. At its widest it is all of 200 miles across, at its narrowest only nine. In all the area is 290,000 square miles, which is smaller than that of any other South American country except Ecuador, Paraguay, and Uruguay. Chile also claims half a million square miles in Antarctica and has established three permanent bases there where serious scientific and mineral investigations are being carried on.

In a long narrow country of this kind, with innumerable islands, one would expect to find easy water transportation—but such is not the case. Though Chile has six thousand miles of coast, counting bays and fiords, there are but few good natural harbors in the more populated zones. From the Peruvian boundary to the Strait of Magellan the seaman faces an endless wall, some 1,500 to 3,000 feet high in the north, that drops abruptly into the Pacific. As one goes south the color changes gradually from brown to green, and the wall becomes lower and lower, but the abrupt slopes are ever there.

The coastal range forming this wall is one of Chile's three dominant features. The second is the high cordillera of the Andes on the Bolivian and Argentine frontiers, and the third is the longitudinal valley between these two. The middle third of this central valley is Chile's breadbasket. To the north lies the great desert of Atacama, probably the most barren large expanse of land in the world; to the south dense forests cover both mainland and islands. Only 8 per cent of Chile's surface supports agriculture. Another 9 per cent is suitable for pasture, and 22 per cent is forest, leaving 61 per cent not suitable for development. The initiative and industry of the Chilean people are demonstrated by the fact that these scanty agricultural and pasture areas now furnish 90 per cent of the population's food.

EXTREMES OF CLIMATE. The dweller in the arid north will tell you that it never rains there, at least not below the 10,000-foot level. This is a slight exaggeration; for almost every place in the region has known a sudden cloudburst or fall of snow, or at least a ten-minute shower, though such may not occur more than once in a decade. There is a summer "rainy season," if one may call it that, in the cordillera in January, February, and March, during which much of the meager precipitation falls as snow and sleet. Precipitation is governed by a cycle that brings a peak of intensity every seventh year.

Two of Chile's three great copper mines, its nitrate industry, its sulphur, and many of its smaller mines

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are located within this dry zone. The water essential for mining originates in the folded and fractured eastern cordillera of the Andes and flows westward for fully a hundred miles through buried channels of the past, to gush forth as springs.

In contrast with the dry north, the island region of the south has more than 200 inches of rain a year. Between these two extremes are great variations, not only from north to south, but also from west to east. At latitude 53° S., for example, more than 200 inches is recorded on the windward side of Isla Desolación, whereas on the plateau near the Argentine frontier only 100 miles to the east, there is barely 12 inches. Punta Arenas, at the same latitude, has only 19 inches. Just the opposite occurs in the north, where the only precipitation worth noting falls at the higher elevations inland.

Temperatures also run wild. Iquique, at sea level well within the tropics, averages 64° F. Punta Arenas, southernmost large city in the world, has an average of 44°, and a winter minimum of 15°. Indeed, temperatures throughout Chile are affected by the Humboldt Current: north of Valdivia they are lower than would be expected, south they are higher, because the waters of the current are colder than the atmosphere in the one case and warmer in the other.

MORE THAN HALF EMPTY. Chile's population today is about six million. Thirty per cent are concentrated in the province of Santiago, which includes the capital city and a great number of industrial plants. More than half of the country, made up of high mountains, arid deserts, and dense forests, is uninhabited. Though Chile has doubled its population during the present century, the increase is in no way comparable with that in nations such as Argentina, Uruguay, and Brazil.

Chile's position off most international trade routes and distant from the influence of Europe and North America has given it a homogeneous population. The language is Spanish. The religion is almost entirely Roman Catholic.

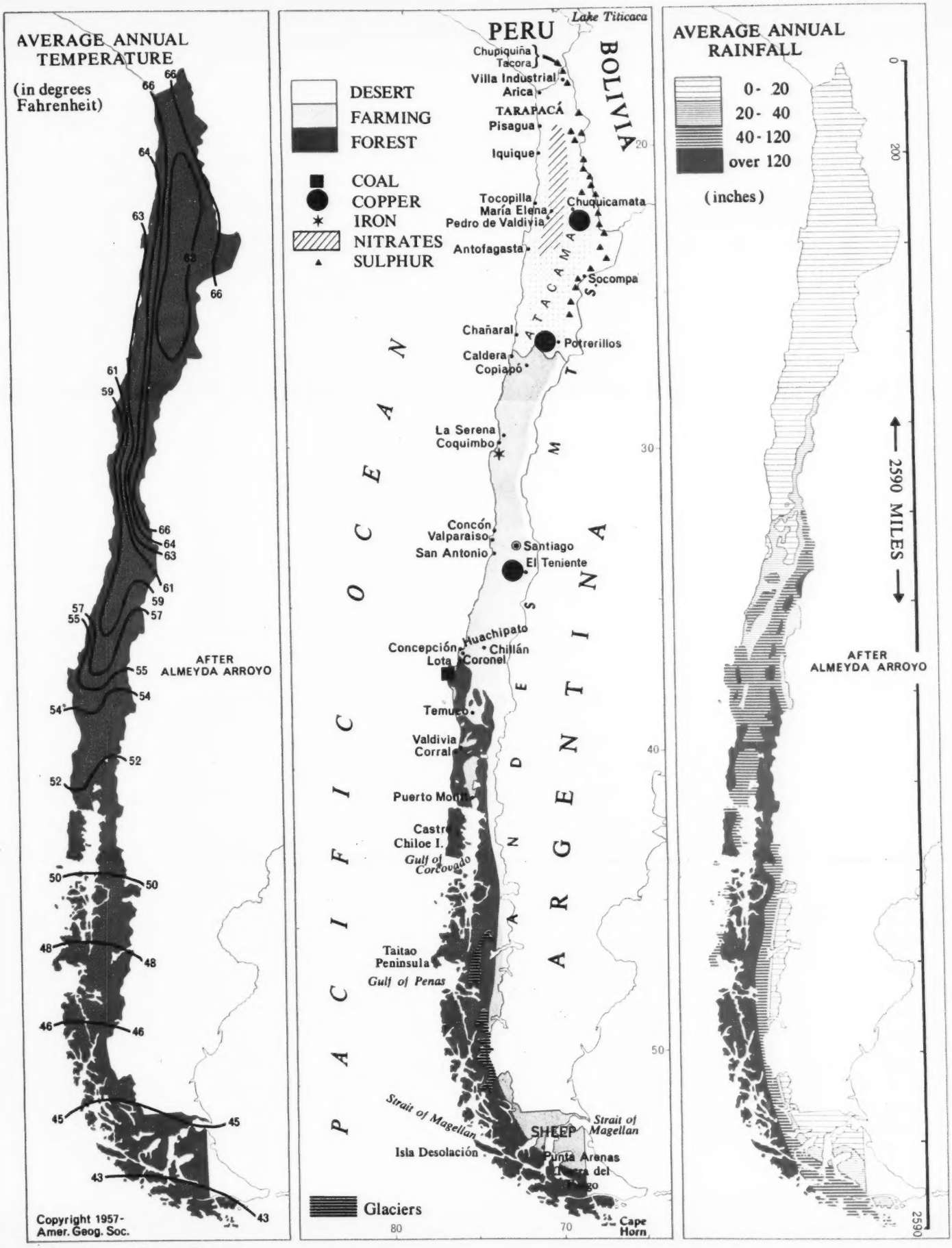
TRANSPORTATION. Transportation and communication, except on the sea, are fraught with difficulties. Railroad building and maintenance must cope with rugged, mountainous terrain crossed by numerous arroyos. Despite such obstacles, the longitudinal railroad stretches over 23 degrees of latitude, all the way from Pisagua to Puerto Montt, with a continuation to Castro on Chiloe Island. A pioneer in South American railroad construction, Chile has set the pace for its neighbors by building nearly 6,000 miles of main and branch lines.

Chile has also built its share of the Pan-American Highway, amounting to 1,352 miles from the Peruvian border to Santiago and 102 miles from Santiago to the Argentine border on the way to Buenos Aires. Another road, 728 miles long, has been built between Santiago and Puerto Montt. Only slightly more than one-quarter of these roads have been paved so far. In addition, international highways supplement the railroads to Bolivia and Argentina at various passes, and in the lake region of south-central Chile stretches of highway are interspersed with water transportation across the lakes to connect with roads on the Argentine side of the frontier. But far more important than the international routes are the regional roads for local traffic, amounting to more than 80 per cent of Chile's 29,000 road miles.

Despite the relatively high mileage of railroads and highways, the toll that Chile's terrain imposes on all land transportation has turned the bulk of haulage along the country's axis to ocean and air—freight by the former, passengers by the latter. Moreover, it will never be possible to construct either railroad or highway the whole length of the country; for permanent ice fields and glaciers constitute an insurmountable barrier over three hundred miles in the far south.

The sea is by far the cheapest means of transporting goods, and for this Chile has an adequate merchant marine. Valparaiso, Antofagasta, Iquique, Tocopilla, San Antonio, Lota, Coronel, Chañaral, Arica, Coquimbo, Corral, Punta Arenas, and Puerto Montt are major ports, with facilities ranging all the way from docks to anchorages; a good share of the cargo is still handled by lighters. North of Puerto Montt all maritime traffic goes by the open sea, but from Puerto Montt to Punta Arenas Chile has one of the longest natural protected waterways in the world—900 miles. Only the narrow isthmus, 1½ miles wide, connecting the Taitao Peninsula with the mainland blocks through passage. Work was actually begun on an ambitious project to construct a canal across this 25-foot barrier of glacial sediments, but was abandoned early in the forties mainly because of icebergs and avalanches of detritus and fallen trees.

FARMS AND RANCHES. Fundamentally, Chile is an agricultural nation. The land provides work



Maps drawn by Vincent Kotschar

and livelihood for a greater number of people than any other resource. Agriculture and stock raising are confined mainly to large haciendas in the fertile region of central Chile, operated with the labor of numerous dependent tenants, though the virtual serfdom that existed during the nineteenth century has been gradually disappearing in favor of more democratic organization. These properties of 15,000 to 20,000 acres are spread almost everywhere from Coquimbo to a point just south of Concepción, and again in the sheep country of Tierra del Fuego and the continental strip directly to the north. The smaller properties, often only 25 acres farmed by a single person, are commonest on Chiloe Island and near Temuco.

High up in the Andes in the rainless north, small irrigated terraces dot steep canyon slopes, where by dint of great effort the farmers grow just enough for the local group. Farther south, where the desert brown gives way to larger and larger sections of green, one sees the inevitable irrigation ditch, a thin winding line following the contour along the hillsides.

Only one-quarter of the cultivated land is worked by mechanized units. Ox-drawn carts and men winnowing grain by throwing it into the wind are much more common. But slowly tractors and trucks, threshing machines and other mechanized equipment, are replacing men and old methods. Agricultural machines now are near the top among Chilean imports. Again, use of artificial fertilizers is extremely rare, and this in a country that exports much larger quantities of nitrogen fertilizers than the entire national fertilizer consumption.

Besides the difficult problems created by the terrain, Chile's agriculture lacks favorable conditions of both climate and soil. In central Chile the rains occur in winter, not in the growing season. Erosion has been taking its toll in the regions having the best soils. A campaign to rehabilitate the soils through rotation of crops, greater use of fertilizers, and better farming methods including more mechanization, is steadily progressing, but Chile still has a long way to go to reach a point where it can develop its full agricultural possibilities. Meanwhile four-fifths of the cultivated land is devoted to cereals, principally wheat. Potatoes form the second most important crop, with vegetables, fruits, including grapes for an excellent wine, textile fibers, oil-producing plants, tobacco, and woods following.

Chile has not been able to produce all the meat needed and hence has had to import Argentine cattle, particularly in the nitrate- and copper-producing sections of the north. Economic considerations and restrictions on the export of Argentine cattle have made for better development of Chile's beef-cattle industry in recent years, along with the products that go with it. Imports of beef in 1955 were barely 15 per cent of those in 1951.

Sheep contribute about 15 per cent of the meat consumed in Chile and about 20,000 long tons annually of wool. Though these sheep-ranching lands, comprising the northern part of Tierra del Fuego and the mainland to the north, are relatively small, they are among the most productive sheep regions of the world.

COPPER, NITRATE, AND SULPHUR. Much more wealth-producing, though employing far fewer workers than farming and livestock, is the mining industry. Here copper is most important. Chile is second only to the United States among copper-producing countries, and it is the world's foremost copper-exporting country. About 90 per cent of this metal comes from three North American enterprises at Chuquicamata, El Teniente, and Potrerillos, and together they provide about 56 per cent of the foreign funds required for Chile's commerce abroad. Of 434,000 tons of copper produced in 1956, all of 412,000 were exported.

Chuquicamata has been one of the world's greatest

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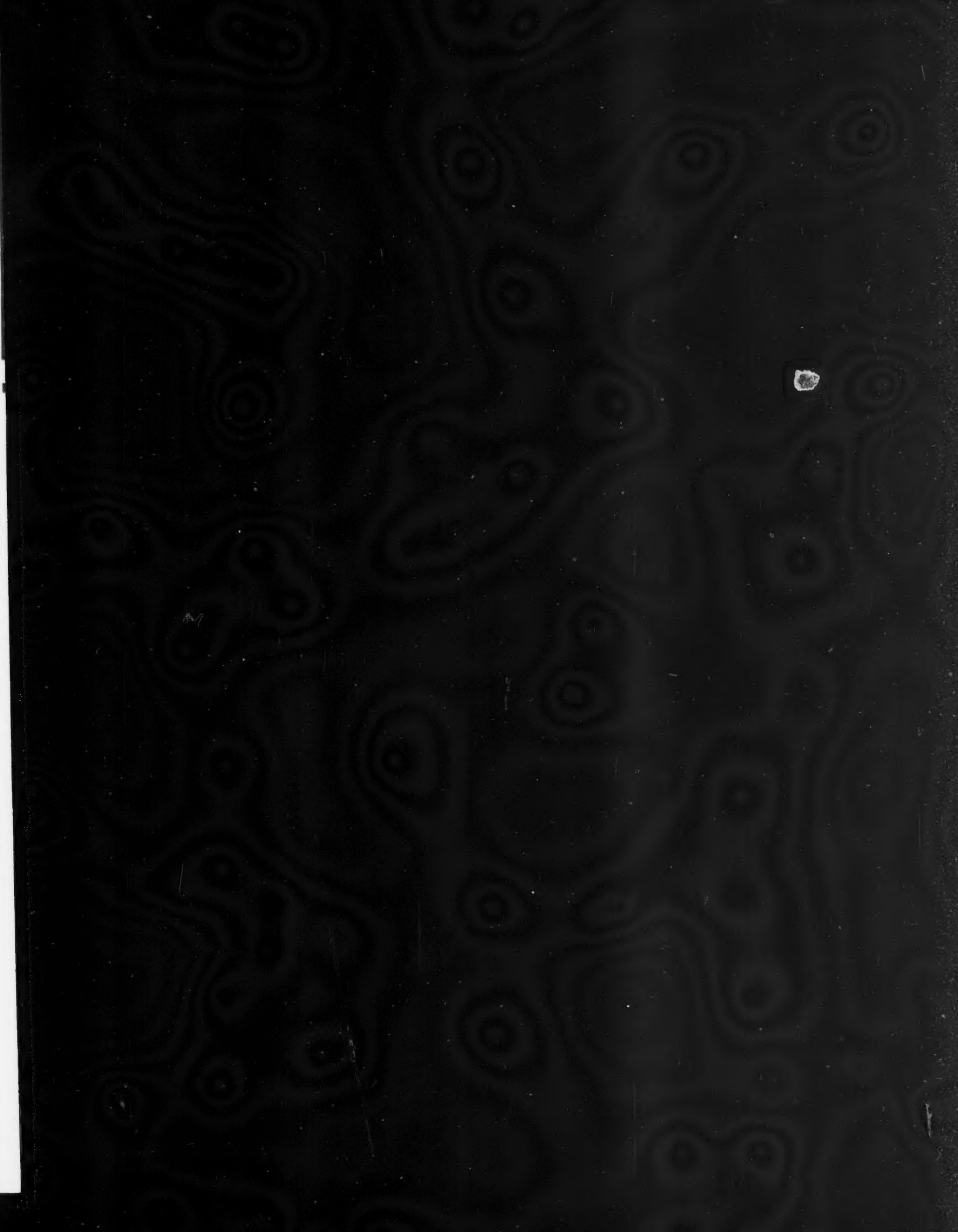

copper centers since it began work in 1915, treating low-grade ores (between one and two per cent) from an open pit that is now two miles long by half a mile wide by 1,000 feet deep. To mine about 100,000 tons of ore and waste each day and to extract from it about 700 tons of copper, requires the services of 6,000–7,000 workers, 80 miles of railroads on the property, 250 miles of water lines reaching almost to the Bolivian border, a power plant at Tocopilla with three transmission lines, hundreds of millions of dollars of plant installations, mechanical equipment and shops, and a complete town of 24,000 people with all its dependencies. Chuquicamata's proven copper-ore reserves are greater than any other copper deposit known and are calculated to last for more than one hundred years at the present rate of consumption.

All three of the great Chilean copper centers are now adding large sums to their capital investments in order to increase production and to make for a higher standard of living among their workers. When these expansion programs are completed (in 1960), copper production is scheduled to reach half a million tons a year, 25 per cent more than present capacity. Of significance is a recent government report that Chile exported copper valued at $182,910,000 during the first half of 1956, which was 30 per cent over the same period in 1955. Slightly more than half of this export copper goes to the United States.

Numerous small mines produce copper, gold, silver, iron, manganese, and other metals. But second in importance in Chilean mining is sodium nitrate; indeed, in 1955 the nitrate operations employed about 20,300 workers, fully one-third more than the copper companies. Sodium nitrate is found in its natural state only in the northern desert. Two large plants at Pedro de Valdivia and María Elena produce 60 per cent of present output. But Chile's nitrate industry has been waning since the 1928-crash in the market for natural nitrate, when it was displaced almost overnight by European fertilizers developed during World War I, and Chile now provides a scant ten per cent of world consumption. As a by-product of nitrate production, the country supplies nearly ten per cent of the world's iodine.

Sulphur is another of Chile's exports. Despite the fact that large quantities of sulphur are used in the national wine industry, nearly 50,000 long tons was sent abroad in 1955. Here again Chile stands out as a land of extremes. Its sulphur ore reserves, atop volcanoes that form an almost continuous range for some 600 miles from the northern boundary, are of higher grade than any extensive deposits known elsewhere;

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